

STEMs on the Ground: A Graduate Teaching Fellows Case Study of Science Communication in Implementation

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GK-12 provides funding for graduate students in NSF-supported science, technology, engineering, and mathematics (STEM) disciplines to bring their research practice and findings into K-12 learning settings, and in particular, allows them to gain the skills to communicate STEM subjects to non-technical audiences. Through collaborations with other graduate Fellows and faculty from STEM disciplines, and teachers and students in K-12 environments, Fellows can gain a deeper understanding of their own research and place it within a societal and global context. As part of our evaluation of the GK-12 initiative, the Center for Urban and Multicultural Education has taken a multi-method approach to assessing Fellows' science communication and its development over time. Our evaluation includes the utilization of a new, novel survey approach to assessing communication skills (Baram-Tsabari & Lewenstein, 2012), such as having Fellows' identify science concepts that should be defined when speaking with (or writing for) a nontechnical audience via the communication skills survey, and quantifying jargon use in descriptions of scientific phenomena. Other methods applied to assess Fellows' science communication skills include classroom observations, interviews with Fellows' advisors, and focus groups with classroom partner teachers. Pre-test survey results show that prior to their participation in GK-12, the vast majority of Fellows (81.8%) have never received any training in communicating science to non-specialist audiences. Pre-tests measuring Fellow's ability to describe their own research in a nontechnical manner suggested that GK-12 Fellows had much room for improvement in terms of communicating their research to the general public. We anticipate the findings of this study will provide insight into the potential for graduate training to incorporate communication, teaching, and presentation skills that will enhance STEM scientists' communication – thus providing for a more useful dialogue with the general public and the potential for a more informed citizenry.

Mentors: Robert J. Helfenbein, Center for Urban and Multicultural Education (CUME), Indiana University-IUPUI